--55.(New) A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a catalytic element for facilitating a crystallization of said semiconductor film;

irradiating said semiconductor film with laser light in air for crystallizing said semiconductor film after providing said catalytic element;

removing a natural oxidation film from a surface of said semiconductor film by etching; and

leveling said surface of said semiconductor film by heating after removing said natural oxidation film.

56.(New) A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a catalytic element for facilitating a crystallization of said semiconductor film;

irradiating said semiconductor film with laser light in air for crystallizing said semiconductor film after providing said catalytic element;

removing a natural oxidation film from a surface of said semiconductor film by etching; and

leveling said surface of said semiconductor film by heating in an atmosphere after removing said natural oxidation film, a concentration of oxygen or a oxygen compound contained in said atmosphere is 10 ppm or less.

57.(New) A method of manufacturing a semiconductor device according to any one of claims 55 and 56, wherein said step of leveling said surface of said semiconductor film is conducted by furnace annealing.